

REMARKS

The rejection of Claims 11 and 12 under 35 U.S.C. § 102(b) as anticipated by any one of U.S. 2,203,196 (Hanhart), CH172368 (CH '368), and U.S. 5,609,796 (Yamamoto), is respectfully traversed.

The Examiner finds that the “doubled dye” compound of above formula (VIII), wherein X is H, in Claim 11, and the compound of formula (IX) of Claim 12, wherein X is H, and M¹ and M² are copper (II), are anticipated by the applied prior art. As discussed in further detail below, the newly-submitted Gessner Declaration demonstrates that the compounds relied on by the Examiner are not in the public domain, because the corresponding prior art does not provide an enabling disclosure of how to make them, and the Examiner has not provided any other prior art showing that one skilled in the art would be enabled to make these compounds.

The dyes of formula (VIII) wherein X is H dyes are obtained by a reductive coupling of dyes whose amino groups carry a benzoyl radical as protective group, followed by deprotection, i.e., by the cleavage of the benzoyl radical. The copper complex can be prepared before, after or during the deprotecting step.

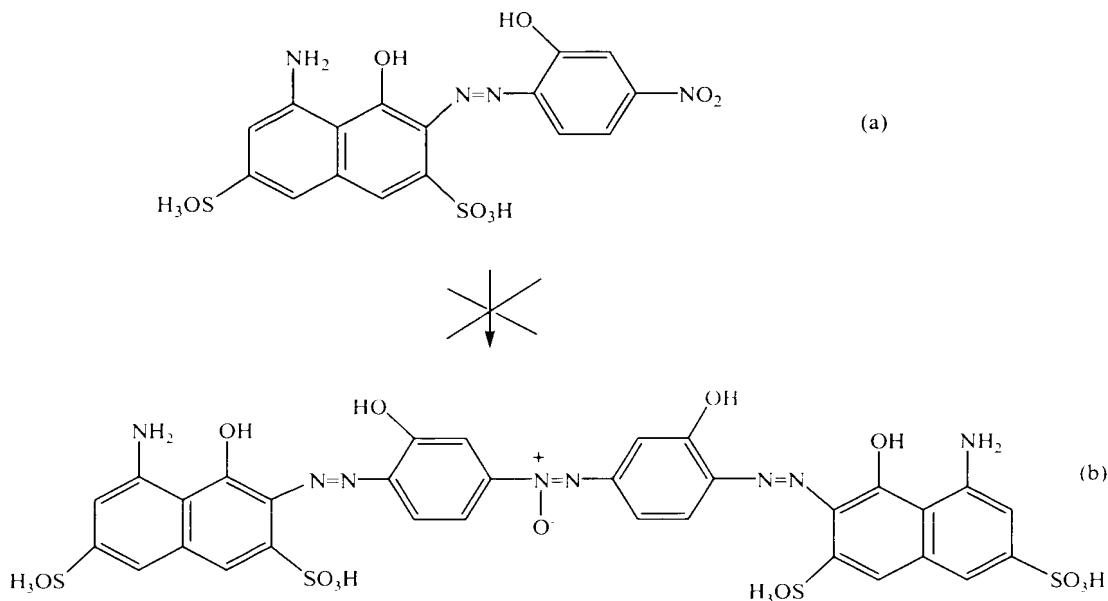
The present inventors have found that synthetic routes without using the benzoyl protecting groups do not yield the claimed dyes, as shown in the Gessner Declaration. One possible reason might be that the reductive coupling reaction is very sensitive to the electron density of the system, which is reduced by the benzoyl group due to amide delocalization. Another reason might be interference of the amino groups with the reducing agent.

The present invention is based on the inventors’ finding of how to protect the amino group before preparing azoxy dyes of an aminohydroxynaphthalenesulfonic acid system.

Neither Hanhart nor CH '368 nor Yamamoto et al disclose the preparation of a benzoyl protected monoazo dye of aminohydroxynaphthalenesulfonic acid. Consequently,

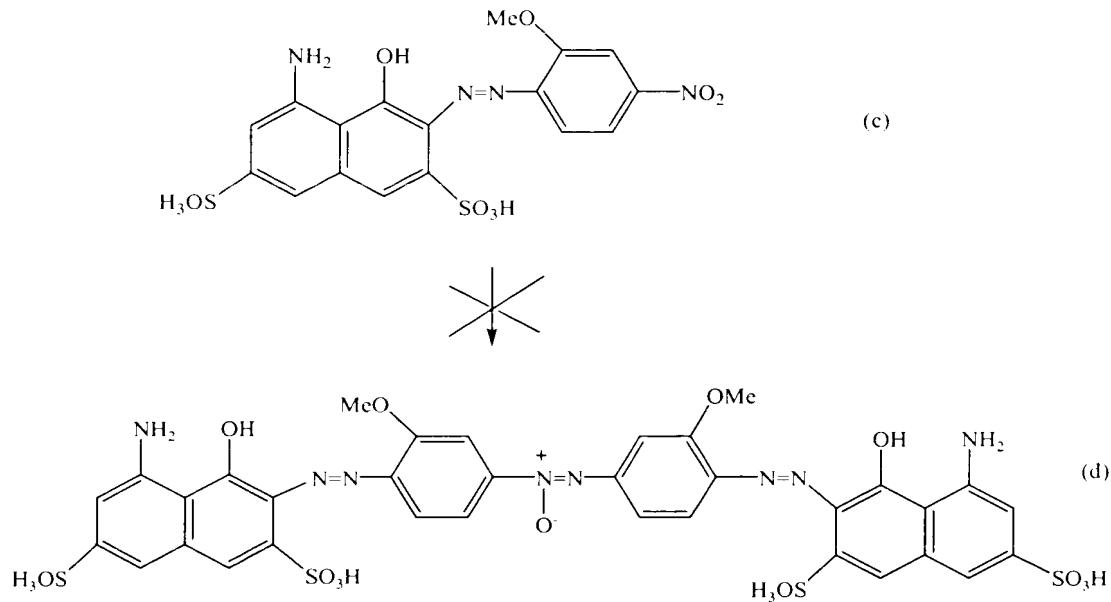
none of Hanhart, CH '368 and Yamamoto et al enable preparation of dyes of the above formula.

Hanhart discloses reacting the monoazo dye (a) under basic conditions in the presence of an organic reduction reagent. Hanhart postulates the reaction product to be dye (b), as shown below.



However, Gessner tried to reproduce the results but did not succeed in obtaining the dye (b). Instead, a blue dye was obtained whose mass data does not fit with the expected data for formula (b). Accordingly, the copper complex could not be prepared either. Therefore, neither the dye nor its copper complex of Hanhart are in the art.

Yamamoto et al postulates that the dye (d) can be obtained from the monoazo dye (c) by alkaline coupling, as shown below.



Starting with the product of the alkaline coupling, Yamamoto et al discloses preparation of the copper complex and after decomplexation of the hydroxide substituted dye.

Again, Gessner attempted to reproduce the results. However, all efforts result in the monoazo dye only. Although Gessner tried different amounts of sodium hydroxide in the coupling step, he did not achieve a doubling of the dye. Consequently, neither dye (d) nor its copper complex nor the hydroxy substituted dye are in the art.

CH '368 discloses a dye with 5-nitro-2-aminobenzoic acid and 1-amino-8-hydroxynaphthalen-3,6-disulfonic acid as structure elements. These dyes differ from the dyes of the present invention by the carboxyl radical on the phenyl ring.

Gessner prepared the dyestuff of CH '368. The comparison to the dyestuff starting from 5-nitro-2-aminoanisole showed that the dyestuff of the present invention has a better substantivity. A good substantivity means that in the coloration process the waste water from the paper production is only weakly colored. The experimental data show as well, that the inventive dyes have a greater brilliance and color depth than those of the prior art.

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For all the above reasons, it is respectfully requested that the rejection over prior art be withdrawn.

Applicants gratefully acknowledge the Examiner's allowance of Claims 1-10 and 13. Nevertheless, Applicants respectfully submit that all of the presently-pending claims in this application are now in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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